



## A taxonomic revision of the family Harrimaniidae (Hemichordata: Enteropneusta) with descriptions of seven species from the Eastern Pacific

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### Abstract

The family Harrimaniidae (Hemichordata: Enteropneusta) is revised on the basis of morphological characters. The number of harrimaniid genera is increased to nine by the addition of *Horstia* n. gen., *Mesoglossus* n. gen., *Ritteria* n. gen. and *Saxipendium*, a genus previously assigned to the monospecific family Saxipendiidae. The number of species is increased to 34, resulting from the description of five new species from the eastern Pacific — *Horstia kincaidi*, *Mesoglossus intermedius*, *M. macginitiei*, *Protoglossus mackiei* and *Ritteria ambigua*. A description is supplied for a sixth harrimaniid species, *Stereobalanus willeyi* Ritter & Davis, 1904, which previously had the status of a *nomen nudum*. Four harrimaniids previously assigned to the genus *Saccoglossus* are transferred to the genus *Mesoglossus* — *M. bournei*, *M. caraibicus*, *M. gurneyi* and *M. pygmaeus*, while *Saccoglossus borealis* is reassigned to the genus *Harrimania*. Notes on habitat and zoogeography are included for the seven foregoing species and a table of diagnostic characters for existing and new species and a dichotomous key to the enteropneust families and harrimaniid genera are provided. Finally, a phylogenetic hypothesis concerning the Harrimaniidae is postulated, with discussion on the evolution of the group.

**Key words:** Enteropneusta, acorn worms, Harrimaniidae, new genera, new species, *Saxipendium*, *Xenopleura*, zoogeography, dichotomous key, phylogeny

### Introduction

The family Harrimaniidae is one of five families of Enteropneusta. Of the 79 enteropneust species known to date, 28 are classified in this family, which consists at the time of writing of the following five genera — *Harrimania*, *Protoglossus*, *Saccoglossus*, *Stereobalanus* and *Xenopleura*. Members of this family include common and widely distributed North American species such as *Saccoglossus kowalevskii* (Agassiz, 1873) and *S. pusillus* (Ritter, 1902). Found at all latitudes, from the intertidal zone to the deep sea, enteropneusts inhabit sand or mud, occasionally under rocks or among seaweed holdfasts. Typical habitats are clean coral-sand flats exposed at low tides and black mud under clean sea water. Some species may be located by a coiled casting of sand thrown up in a cone at one end of the burrow. But most species are encountered only by chance digging in the right place.

Our work is based in part on an unpublished manuscript and specimen collections initiated a century ago by William E. Ritter and later continued by Theodore H. Bullock and Kandula P. Rao. Our present study incorporates a part of this unpublished material to revise and update the family Harrimaniidae, to which we add five new species and three new genera. In addition, a description is provided for *Stereobalanus willeyi*, heretofore a *nomen nudum*. Moreover, an expanded description is provided for *Saxipendium coronatum*